

WHAT IS CLAIMED IS:

1 1. A data processing method, comprising steps of:
2 providing a first device comprising a communicator having a first
3 interface function and a second interface function defined in an asymmetric
4 interface standard;
5 connecting a second device to the first device;
6 detecting whether the second device has at least one of the first
7 interface function and the second interface function;
8 transmitting data, from the first device to the second device, through
9 use of the first interface function, in a case where it is detected that the second
10 device has the second interface function; and
11 transmitting a signal for processing the data, from the first device to
12 the second device, through use of the second interface function, in a case
13 where it is detected that the second device has the first interface function.

1 2. The data processing method as set forth in claim 1, wherein the data
2 includes at least one of image data, music data and motion picture data.

1 3. The data processing method as set forth in claim 1, wherein:
2 it is detected that the second device has the first interface function in
3 a case where a first type connector of a cable defined under the interface
4 standard is connected to the communicator; and
5 it is detected that the second device has the second interface function
6 in a case where a second type connector of a cable defined under the

7 interface standard is connected to the communicator.

1 4. The data processing method as set forth in claim 1, wherein:
2 the interface standard is an On-The-Go standard of a USB;
3 the first interface function is a device-side interface function of the
4 USB; and
5 the second interface function is a host-side interface function of the
6 USB.

1 5. The data processing method as set forth in claim 1, wherein each of
2 the steps of transmitting the data and the signal is performed on the basis of
3 one of a plurality of USB classes in accordance with at least one of a type of
4 the second device and an application executed in the second device.

1 6. The data processing method as set forth in claim 4, further comprising
2 steps of:
3 detecting whether the first interface function and the second interface
4 function are assigned to the first device and the second device correctly; and
5 activating a negotiation protocol in a case where it is detected that the
6 first interface function and the second interface function are incorrectly
7 assigned, so that each of the first device and the second device has the other
8 one of the first interface function and the second interface function.

1 7. The data processing method as set forth in claim 6, wherein the first
2 device is a digital camera device, and the second device is a PDA device

3 having both of the first interface function and the second interface function.

1 8. The data processing method as set forth in claim 6, wherein the first
2 device is a digital camera device, and the second device is a printer having
3 both of the first interface function and the second interface function.

1 9. The data processing method as set forth in claim 1, wherein:
2 the step of transmitting the data is performed in a case where the first
3 device is a digital camera device and the second device is a printer having a
4 host-side interface of a USB; and
5 the step of transmitting the signal is performed in a case where the
6 first device is a digital camera device and the second device is a printer having
7 a device-side interface of the USB.

1 10. A data processing method, comprising steps of:
2 providing a first device comprising a communicator having a first
3 interface function and a second interface function defined in an asymmetric
4 interface standard;
5 connecting a second device to the first device;
6 detecting whether the second device has at least one of the first
7 interface function and the second interface function;
8 transmitting data, from the first device to the second device, through
9 use of the first interface function, in a case where it is detected that the second
10 device has the second interface function; and
11 exchanging the data, between the first device and a storage in the

12 second device, through use of the second interface function, in a case where it
13 is detected that the second device has the first interface function.

1 11. The data processing method as set forth in claim 10, wherein the data
2 includes at least one of image data, music data and motion picture data.

1 12. The data processing method as set forth in claim 10, wherein:
2 it is detected that the second device has the first interface function in
3 a case where a first type connector of a cable defined under the interface
4 standard is connected to the communicator; and
5 it is detected that the second device has the second interface function
6 in a case where a second type connector of a cable defined under the
7 interface standard is connected to the communicator.

1 13. The data processing method as set forth in claim 10, wherein:
2 the interface standard is an On-The-Go standard of a USB;
3 the first interface function is a device-side interface function of the
4 USB; and
5 the second interface function is a host-side interface function of the
6 USB.

1 14. The data processing method as set forth in claim 10, wherein each of
2 the steps of transmitting the data and the signal is performed on the basis of
3 one of a plurality of USB classes in accordance with at least one of a type of
4 the second device and an application executed in the second device.

1 15. The data processing method as set forth in claim 13, further
2 comprising steps of:

3 detecting whether the first interface function and the second interface
4 function are assigned to the first device and the second device correctly; and

5 activating a negotiation protocol in a case where it is detected that the
6 first interface function and the second interface function are incorrectly
7 assigned, so that each of the first device and the second device has the other
8 one of the first interface function and the second interface function.

1 16. The data processing method as set forth in claim 15, wherein the first
2 device is a digital camera device, and the second device is a PDA device
3 having both of the first interface function and the second interface function.

1 17. The data processing method as set forth in claim 15, wherein the first
2 device is a digital camera device, and the second device is a printer having
3 both of the first interface function and the second interface function.

1 18. The data processing method as set forth in claim 1, wherein:
2 the step of transmitting the data is performed in a case where the first
3 device is a digital camera device and the second device is a printer having a
4 host-side interface of a USB; and

5 the step of exchanging the data is performed in a case where the first
6 device is a digital camera device and the second device is a printer having a
7 device-side interface of the USB.

1 19. A data processing method, comprising steps of:
2 providing a first device comprising a storage which stores data therein,
3 and a communicator having a device-side interface function of a USB;
4 connecting a second device to the first device;
5 selecting one of a plurality of USB classes in accordance with at least
6 one of a type of the second device and an application executed in the second
7 device; and
8 transmitting the data, from the first device to the second device,
9 through use of the device-side interface function and based on the selected
10 one of the USB classes.

1 20. The data processing method as set forth in claim 19, further
2 comprising steps of:
3 providing, in the first device, a plurality of interface descriptors each of
4 which is associated with one of the USB classes; and
5 transmitting all of the interface descriptors, in a case where the
6 second device is adapted to at least one of the USB classes.

1 21. The data processing method as set forth in claim 20, wherein the
2 interface descriptors includes:
3 a first interface descriptor for a first USB class used in a case where
4 the second device is a printer having a host-side interface function of the USB;
5 and
6 a second interface descriptor for a second USB class used in a case

7 where the first device serves as an external storage of the second device.

1 22. The data processing method as set forth in claim 21, wherein the first
2 USB class is a still image capture device class, and the second USB class is a
3 mass storage class.

1 23. The data processing method as set forth in claim 19, further
2 comprising steps of:

3 providing, in the first device, a first interface descriptor associated
4 with a USB class, and a second interface descriptor associated with a
5 vendor-extended USB class corresponding to the USB class;

6 transmitting, from the first device to the second device, the first
7 interface descriptor and the second descriptor; and

8 activating the second descriptor in a case where the first device
9 receives a command for activating the second descriptor from the second
10 device.

1 24. A data processing method, comprising steps of:

2 providing a first device comprising a storage which stores data therein,
3 and a communicator having a host-side interface function of a USB;

4 connecting a second device to the first device;

5 selecting one of a plurality of USB classes in accordance with at least
6 one of a type of the second device and an application executed in the second
7 device; and

8 transmitting the data, from the first device to the second device,

9 through use of the host-side interface function and based on the selected one
10 of the USB classes.

1 25. The data processing method as set forth in claim 24, wherein the one
2 of the USB classes is selected in accordance with a type of a descriptor
3 transmitted from the second device.

1 26. A first data processing device adapted to be connected to a second
2 data processing device, the first data processing device comprising:
3 a storage, which stores data therein;
4 a communicator, having a first interface function and a second
5 interface function defined in an asymmetric interface standard;
6 a first communications processor, operable to transmit the data to the
7 second data processing device through use of the first interface function;
8 a second communications processor, operable to transmit a signal for
9 processing the data to the second data processing device through use of the
10 second interface function; and
11 a controller, which activates the first communications processor, in a
12 case where the second data processing device having the second interface
13 function is connected to the communicator, and activates the second
14 communications processor to transmit the data, in a case where the second
15 data processing device having the first interface function is connected to the
16 communicator.

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1 27. A first data processing device adapted to be connected to a second
2 data processing device, the first data processing device comprising:
3 a storage, which stores data therein;
4 a communicator, having a first interface function and a second
5 interface function defined in an asymmetric interface standard;
6 a first communications processor, operable to transmit the data to the
7 second data processing device through use of the first interface function;
8 a second communications processor, operable to exchange the data
9 between the first device and a storage in the second device through use of the
10 second interface function; and
11 a controller, which activates the first communications processor to
12 transmit the data, in a case where the second data processing device having
13 the second interface function is connected to the communicator, and activates
14 the second communications processor to exchange the data, in a case where
15 the second data processing device having the first interface function is
16 connected to the communicator.

1 28. A first data processing device adapted to be connected to a second
2 data processing device, the first data processing device comprising:
3 a storage, which stores data therein;
4 a communicator, having a device-side interface function of a USB;
5 and
6 a communications processor, which transmits the data to the second
7 image processing device, through use of the device-side interface function and
8 based on one of a plurality of USB classes which is selected in accordance

9 with at least one of a type of the second data processing device and an
10 application executed in the second data processing device.

1 29. A first data processing device adapted to be connected to a second
2 data processing device, the first data processing device comprising:

3 a storage, which stores data therein;

4 a communicator, having a host-side interface function of a USB; and

5 a communications processor, which transmits the data to the second
6 image processing device, through use of the host-side interface function and
7 based on one of a plurality of USB classes which is selected in accordance
8 with at least one of a type of the second data processing device and an
9 application executed in the second data processing device.

1 30. A data processing system, comprising:

2 a first data processing device, comprising a storage which stores
3 data; and

4 a second data processing device, connected to the first data
5 processing device to perform processing with respect to the data,

6 wherein the first data processing device further comprises:

7 a communicator, having a first interface function and a second
8 interface function defined in an asymmetric interface standard;

9 a first communications processor, operable to transmit the data to
10 the second data processing device through use of the first interface function;

11 a second communications processor, operable to transmit a signal
12 for processing the data to the second data processing device through use of

13 the second interface function; and

14 a controller, which activates the first communications processor, in
15 a case where the second data processing device having the second interface
16 function is connected to the communicator, and activates the second
17 communications processor to transmit the data, in a case where the second
18 data processing device having the first interface function is connected to the
19 communicator.

1 31. A data processing system, comprising:

2 a first data processing device, comprising a storage which stores
3 data; and

4 a second data processing device, connected to the first data
5 processing device to perform processing with respect to the data,

6 wherein the first data processing device further comprises:

7 a communicator, having a first interface function and a second
8 interface function defined in an asymmetric interface standard;

9 a first communications processor, operable to transmit the data to
10 the second data processing device through use of the first interface function;

11 a second communications processor, operable to exchange the
12 data between the first device and a storage in the second device through use
13 of the second interface function; and

14 a controller, which activates the first communications processor to
15 transmit the data, in a case where the second data processing device having
16 the second interface function is connected to the communicator, and activates
17 the second communications processor to exchange the data, in a case where

18 the second data processing device having the first interface function is
19 connected to the communicator.

1 32. A data processing system, comprising:
2 a first data processing device, comprising a storage which stores
3 data; and
4 a second data processing device, connected to the first data
5 processing device to perform processing with respect to the data,
6 wherein the first data processing device further comprises:
7 a communicator, having a device-side interface function of a USB;
8 and
9 a communications processor, which transmits the data to the
10 second image processing device, through use of the device-side interface
11 function and based on one of a plurality of USB classes which is selected in
12 accordance with at least one of a type of the second data processing device
13 and an application executed in the second data processing device.

1 33. A data processing system, comprising:
2 a first data processing device, comprising a storage which stores
3 data; and
4 a second data processing device, connected to the first data
5 processing device to perform processing with respect to the data,
6 wherein the first data processing device further comprises:
7 a communicator, having a host-side interface function of a USB;
8 and

9 a communications processor, which transmits the data to the
10 second image processing device, through use of the host-side interface
11 function and based on one of a plurality of USB classes which is selected in
12 accordance with at least one of a type of the second data processing device
13 and an application executed in the second data processing device.